USDA Foreign Agricultural Service
GAIN Report
Global Agriculture Information Network

Template Version 2.09

Required Report - public distribution

Date: 7/15/2008

GAIN Report Number: KS8039

Korea, Republic of

Biotechnology

Agricultural Biotechnology Report

2008

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Report Highlights:
Updated July 2008: Section I, II, III, IV, V, VI

Korea implemented the LMO Act, Korea's legislation to implement the Cartagena Protocol on Biosafety (CPB) on January 1, 2008. There has been no trade disruption so far but the LMO Act needs to be revised to be consistent with the actual practice and the CPB. To date, 54 biotech crops have obtained food safety approval and environmental risk assessments for 44 biotech crops have been completed. Korea is considering an expansion to the current biotech labeling requirement in response to strong demand from NGOs. Cooking oil and syrups, which are currently exempt from labeling, may be required to be labeled if mandatory labeling is expanded.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
Seoul [KS1]
[KS]

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SECTION I. EXECUTIVE SUMMARY

Korea ratified the Cartagena Protocol on Biosafety (CPB) on October 2, 2007 and on January 1, 2008, implemented the LMO Act, Korea's implementing legislation for the CPB. To date, there have been no trade disruptions, due in large part to the flexible interpretation by the Korean government of their own regulations on the issue of documentation. However, the Korean government has acknowledged that the LMO Act needs to be modified to reflect the actual practice and to be consistent with the CPB. Additionally, the consultation process, as part of the risk assessments for food, feed, and processing (hereinafter referred to as LMO FFPs) are redundant, unprecedented and without scientific justification. Unnecessary delays as a result of these consultations are already leading to delays in reviews of new products which could lead to potential trade disruptions.

Korea has a fairly extensive regulatory system for biotechnology products. The Ministry for Food, Agriculture, Forestry, and Fisheries (MIFAFF) regulates labeling for unprocessed biotech products and conducts environmental risk assessments (ERAs) of biotech crops. The Korea Food & Drug Administration (KFDA) regulates food safety approval of biotech crops and labeling of processed food products containing biotech components. The Ministry of Knowledge Economy (MKE) is the national competent authority for implementation of the CPB. MKE coordinates the efforts of seven ministries that have been drafting regulations and guidelines to implement the CPB.

In the past, Korea has not commercialized any crops produced using biotechnology. Thus, the approval process has always been applied to imported products; however a biotech grass (used for landscaping) was developed by a local university and an ERA for planting was recently submitted. The risk assessment for the biotech grass is currently underway but the review is not expected to be completed for at least two to three years as field testing is required.

Korea has two separate approval systems for biotechnology crops: approvals for human consumption (a food safety approval) and ERAs. Both food safety approvals and ERAs are mandatory for biotech crops. As of July 2008, 54 biotech "events" (i.e., unique genetic lines produced by genetic engineering) had obtained food safety approval. Forty-four biotech events have completed ERAs.

Unprocessed biotech crops that have been approved by KFDA intended for human consumption are required to carry GM labels. Three percent adventitious presence of biotech components is allowed. A "GM Food" label is not required as long as identity preserved (IP) documentation or a government issued certificate is submitted to verify that the product is non-biotech.

For processed products and consumer-ready products, biotech labeling is required for 28 food categories if either of the following two situations apply:

- Biotech soybeans, corn, cotton, canola, and sugar beets are one or more of the top five ingredients in the final product.
- Foreign protein or DNA inserted into the product using biotechnology is still present in the final product.

KFDA is considering an expansion to the current biotech labeling requirements in response to strong demand from NGOs for greater transparency. If mandatory labeling is expanded, cooking oils and corn syrup products, which are currently exempt from biotech labeling, may be required to be labeled.

Local NGOs and TV media are active in instilling a negative perception of biotech agricultural products among Korea's consumers. Although Korean regulations allow for the sale of biotech foods it is impossible to find products with a "GM Food" label in the marketplace. Korean food processors respond to consumer concerns by not using ingredients produced through biotechnology to avoid having to label them as a "GM Food." Retailers explain that they do not want to be singled out for criticism by NGOs for selling biotech products.

The print media used to be negative to biotech agricultural products. Due to the unfavorable international grain market situation these days, however, some newspapers including economic newspapers have started to write positive articles about biotechnology and Korea's need to import biotech grains. However, the major TV stations are still very much negative about biotech food and repeat stories such as rat study by Dr. Pusztai and the monarch butterfly study by Cornell University.

SECTION II. BIOTECHNOLOGY TRADE AND PRODUCTION

A. Commercial Production of Biotechnology Crops

Korea has yet to commercially produce any biotech crops despite a substantial investment in the development of such crops. In 2008, the Korean government including the Ministry for Food, Agriculture, Forestry and Fisheries (MIFAFF), Ministry of Education, Science and Technology (MEST) will invest 99.3 billion won (approximately $87.1 million dollars) in research and development of new agricultural biotech crops and food, which is a 5.7 percent increase compared to the previous year.

B. Biotechnology Crops under Development

The development of biotechnology crops is being led by various government agencies. MIFAFF's Rural Development Administration (RDA) including the National Institute of Agricultural Biotechnology (NIAB) is developing around 80 to 90 separate biotech traits among 18 to 20 crops and five traits in two animals. Herbicide tolerant rice, pepper, perilla seed, and virus resistant potatoes are expected to become the first domestically developed biotech crops to become commercially produced in Korea. Korea's first biotech crops are currently undergoing environmental risk assessments through contained field trials and could be produced commercially in three to four years. No official statistics on the development of biotechnology crops by private entities are available. Based upon a recent survey of local scientific journals, total 380 papers pertinent to biotech crops (54 crops) were issued in Korea between 1990 and 2007. Of the 380 papers, 99 papers were about tobacco, 45 about rice, and 29 about potatoes. Rough industry estimates indicate that approximately 60 varieties are currently under development although they are all still at the laboratory stage. Research is mainly focused on environmental stress resistance and disease resistance biotech crops, transformation technics, gene expression. The recent trend shows that research on 2nd and 3rd generation traits have been increasing.

C. Imports of Biotechnology Crops/Products

Korea imports biotechnology crops and products. Foods for human consumption containing biotech events must undergo a complete safety assessment conducted by the KFDA. Biotechnology crops/products that contain unapproved events are not allowed to be imported or sold on the Korean market. This means that Korea applies a zero tolerance for unapproved events for human consumption. To date, 54 events have completed KFDA's assessments. (See Section III-B for a complete list of approved events.) The most important biotech crops imported from the United States are soybeans and corn, which are used for further processing and animal feed in Korea. Biotech crops and products destined for human consumption and animal feed must carry a biotechnology label. Non-GMO grains must have IP documentation or official government certification of the non-biotech status of the shipment.

In MY 2006/2007 (October 2006 through September 2007) the United States supplied 4,186,000 metric tons (MT) of corn, accounting for 48 percent of Korea's total bulk corn imports. Of that, 4,036,000 MT was used for animal feed, and the rest was used for processing purposes. All corn imported for human consumption was IP-handled, non-biotech corn. Since October 2007, the Korea Corn Processing Industry Association (KOCPIA) has purchased 1.5 million MT of corn for food and industry use, which is subject to August delivery. Of that, 697,000 MT is biotech corn. KOCPIA purchased biotech corn for food and industry use for the first time since KFDA began to require mandatory labeling for corn based products. Due to unavailability of non-biotech corn in the international market and

skyrocketing non-biotech corn prices, KOCPIA had to switch to biotech corn imports. However, NGOs against biotechnology have criticized KOCPIA and are pressuring food manufacturers not to use corn derivatives from biotech corn. As a result, sales of corn syrup since the first import of biotech corn have dropped by about 30 percent. As food manufacturers do not want to be targeted by NGOs, which can sometimes cause damage to the company image, some manufactures have switched from corn syrup to sugar or have tried to find a source for non-biotech corn syrup. As a result, KOCPIA has not made any new contracts for corn to be delivered by September or later.

In MY 2006/2007, the United States supplied 600,000 MT of soybeans, accounting for 49 percent of Korea's total soybean imports. Soybeans imported from the United States consisted of 486,000 MT of soybeans used for crushing and 114,000 MT for food processing. Since vegetable oil is exempted from labeling, soybean imports from the United States for crushing purposes are generally bulk soybeans that contain biotech events. All soybeans imported for food processing such as soybeans for tofu, bean paste, bean sprouts, etc. are IP-handled, non-biotech products.

Like biotech corn import for food use, NGOs are strongly demanding KFDA expand biotech labeling to all food products made from biotech derived ingredients. As a result, KFDA is considering expanding the current biotech labeling requirement in order to respond to consumers' demand for a right to know. If Korea expands biotech labeling to cooking oil, it is expected that local crushers will import crude non-biotech soybean oil, refine and bottle them in Korea and sell them under their brand name instead of importing biotech soybeans and making soybean oil that must carry a GM label. This will force out GM labeled products from the market and consumers will have no choice but buy non-biotech products at a higher cost.

D. Food Aid

South Korea is not a food aid recipient and is not likely to become a food aid recipient in the future.

E. Production of Biotechnology Crops That Were Developed Outside of the United States

At present, Korea does not commercially produce biotechnology crops from any origin.

SECTION III. BIOTECHNOLOGY POLICY

A. Regulatory Framework for Agricultural Biotechnology

The Act on Transboundary Movement of Living Modified Organisms (LMO Act) and its Presidential Decree and Ministerial Ordinance (Korea's LMO legislation and primary regulations to implement the CPB) were drafted by MKE and finalized and announced on March 28, 2001, September 30, 2005, and March 10, 2006, respectively. The legislation and regulations went into effect on January 1, 2008, which is 90 days after Korea's ratification of the CPB on October 2, 2007.

Labeling

The Agricultural Product Quality Control Act is the legal basis for MIFAFF's labeling requirements for unprocessed biotech crops. Until June 2007, MIFAFF required mandatory biotech labeling for soybeans, corn, bean sprouts, and potatoes for human food use. With the revision to the biotechnology labeling guidelines for unprocessed crops, MIFAFF extended biotech labeling to all biotech crops that have been approved by KFDA for human consumption effective from June 29, 2007. In 2007, MIFAFF also revised its Feed Manual and required that retailed packaged animal feed containing biotechnology products be labeled like food products. This new labeling requirement for animal feed went into effect on October 11, 2007.

Labeling guidelines for processed food products containing biotech soybeans and corn as ingredients were finalized on August 30, 2000 and enforced from July 13, 2001. Effective May 14, 2008, KFDA added three more biotech crops to the current product list requiring mandatory GMO labeling. The three crops are cotton, canola, and sugar beets. Biotech labeling is required if the final product contains foreign protein or foreign DNA and crops subject to biotech labeling are used as one or more of top five ingredients. Please refer to Labeling Section on page 10 for details.

Safety Assessments

The Food Sanitation Act is the legal basis for safety assessments of products of agricultural biotechnology for human consumption and labeling of processed food products containing biotech ingredients. Ministry for Health, Welfare, and Family Affairs (MHWF) has delegated the authority to draft guidelines and conduct safety assessments of biotech crops for human consumption and to draft guidelines for the labeling of processed food products containing biotech ingredients to KFDA. KFDA issued safety assessment guidelines and biotech labeling guidelines that are based on Korea's Food Sanitation Act. The KFDA guidelines for safety assessments of biotech crops for human consumption were finalized on August 29, 1999 and revised several times since then. A voluntary safety assessment program, in effect since August 29, 1999, became a mandatory program for soybeans, corn, and potatoes on February 27, 2004 and for all other biotech crops on February 27, 2005.

Responsible Government Ministries and Their Role

Ministry of Knowledge Economy (MKE): National competent authority for the CPB, responsible for the LMO Act and issues related to the development, production, import, export, sales, transportation, and storage (hereafter referred to as trade) of LMOs for industrial use

Ministry of Foreign Affairs & Trade (MOFAT): National focal point for the CPB

Ministry for Food, Agriculture, Forestry, and Fisheries (MIFAFF): Responsible for ERAs for biotechnology crops and fisheries including LMOs for food, feed, and processing, labeling of unprocessed biotechnology crops, and issues related to the trade of agriculture, forestry, livestock, and fishery LMOs

National Institute of Agricultural Biotechnology (NIAB), Rural Development Administration (RDA), MIFAFF: Responsible for ERAs for biotechnology crops and leading developer of biotechnology crops in Korea

Ministry for Health, Welfare, and Family Affairs (MHWF): Responsible for monitoring and/or enforcing regulations pertinent to the Food Sanitation Act and issues related to trade of LMOs used for health and pharmaceutical purposes including human risk assessments of such LMOs

Korea Food & Drug Administration (KFDA) (overseen by MHWF): Responsible for the issuance of food safety approvals of biotechnology crops and the enforcement of labeling requirements for processed food products containing biotech ingredients

Ministry of Environment (MOEN): Responsible for issues related to the trade of LMOs that are used for the purpose of environmental purification or release into the natural environment (this does not include agricultural LMOs for planting) including risk assessments for such LMOs

National Institute of Environmental Research (NIER), (overseen by MOEN: Responsible for import approval of LMOs under jurisdiction of MOEN and environmental risk consultation for LMOs

Ministry of Education, Science & Technology (MEST): Responsible for issues related to the trade of LMOs that are used for testing and research including risk assessments for such LMOs

Ministry of Land, Transport, and Maritime Affairs (MLTM): Responsible for issues related to the trade of maritime LMOs including risk assessments for such LMOs

National Fisheries Research & Development Institute (NFRDI), (overseen by MIFAFF): Responsible for import approval of fisheries and consultations for LMOs for marine environment

Role and Membership of the Biosafety Committee and Its Political Implications

In accordance with Article 31 of the LMO Act, a Biosafety Committee should be established under the Prime Minister to review the following factors relevant to the import and export of LMOs:

- Factors relevant to the implementation of the protocol
- Establishment and implementation of the safety management plan for LMOs
- Notification of a list of LMOs that pose no harm in accordance with the provisions of Article 15
- Re-examination in accordance with the provisions of Article 18 of appeals by an applicant who fails to get import approval, etc.
- Factors relevant to legislation and notification pertinent to the safety management, import, and export, etc. of LMOs
- Factors relevant to the prevention of damage caused by LMOs and measures taken to mitigate damage caused by LMOs

- Factors requested for review by the Chair of the Committee or the head of competent national authority.

The Committee (including the Chair) is composed of 15 or more members but cannot exceed 20 members. The Prime Minister is the Chair. Committee members will include ministers from eight ministries (the seven relevant ministries noted above plus the Ministry of Strategy and Finance (MOSF)). Private sector specialists can also be members of the Committee. The Committee may have subcommittees and technical committees. The Presidential Decree designates the necessary factors relevant to the formation, function, and operation of the Committee, subcommittees, and technical committees. The Committee has not been formed yet but it is likely to be formed soon.

The most important role of the Committee is to reconcile different positions among the relevant ministries. As each relevant ministry holds authority and responsibility in its respective areas, it may not be easy to reach consensus on some issues. In such cases, the Prime Minister as the Chair of the Committee can be called upon to resolve matters lacking consensus.

B. Approval of Biotechnology Crops

Korea has two separate approval systems for biotechnology crops: approvals for human consumption (a food safety approval) and ERAs. Both food safety approvals and ERAs are mandatory for biotech crops.

As of July 2008, food safety approvals have been given to 54 events (out of 62 submissions) and 44 events (out of 57 submissions) have completed ERAs. The fifty seven submissions to RDA include biotech grass for landscaping and three carnation events. As for food safety approval, KFDA has three categories of approval; full approval and two types of conditional approval. Full approval is given to biotech crops that are commercially produced and imported for human consumption. Conditional approval applies to discontinued crops such as potatoes and crops not commercially produced for human consumption such as Bt 10. Crops granted conditional approval require a full safety evaluation if they are intended for commercial production for human consumption. In the past, the scope of ERAs has been limited to the approval of biotechnology crops for unintentional release into the environment, that is until the biotech grass for landscaping was submitted, which is for intentional release (i.e., planting). To date, no product has been approved for commercial production. (Please refer to Section IV, Appendix A for the status of approval of biotechnology crops in Korea.)

C. Field Testing

In December 2007, Korea announced the finalized consolidated guidelines to deal with import, export, and production of LMOs (hereinafter referred to as consolidated guidelines). The consolidated guidelines include provision to cover agricultural biotechnology products to be subject to in-country field tests. It is written that RDA will require in-country field tests for LMOs used for planting seed. As for LMOs to be used for food, feed, and processing (FFPs), RDA will review the information relevant to field tests conducted in the exporting country. However, if necessary, RDA may require in-country field tests for LMO FFPs. For biotech grass for landscaping, in-country field tests are being conducted.

For biotechnology crops being developed by RDA, field trials must follow the “Guidelines for Research and Handling of Recombinant Organisms Related to Agricultural Research.” Voluntary guidelines entitled “Guidelines for Research of Recombinant Organisms” issued by the Ministry of Health & Welfare exist for biotechnology crops under development by private

entities including universities. The consolidated guidelines also include guidelines for local biotech developers and laboratories to comply with during their research and development.

D. Stacked Events

KFDA does not require additional approval for stacked events if they meet the following criteria:

- Traits that are being combined were already approved individually.
- There is no difference in the given traits, intake amount, edible part and processing method in the stacked event and the conventional non-biotech counterpart.
- There is no crossbreeding among subspecies.

Consolidated guidelines announced on December 2007 include provision to treat stacked events with regard to ERAs and the following documents need to be submitted to RDA:

1. Information to verify whether there is interaction of traits in nucleic acid inserted in parental line
2. Available information pertinent to characteristics of stacked events
3. Evaluation of 1 and 2 above
4. Confirmation from the developer who received approval for the parental event used in stacked events and agreement for review of already submitted information for the parental event

RDA reviews the submitted documents and if it is turned out that there is interaction between traits in inserted nucleic acid in the parental line or specific things are noticed, then RDA will require ERAs. Otherwise, no additional approval is required.

E. Coexistence (Zero Tolerance for GMOs in Organic Products)

Although many Korean consumers have negative sentiments about biotech crops and products, Korean regulation provides for the production, import, use and consumption of biotech crops and products. Similarly, regulations exist in Korea that provide for organic agricultural production. At present, however, Korean regulations for organic processed products are mainly focused on the components of the final product rather than on the production process. Accordingly, the Korean Food & Drug Administration maintains a zero-tolerance policy for the inadvertent presence of biotech content in processed organic products. In accordance with the Food Industry Promotion Act, MIFAFF introduced the organic certification program for processed food products on June 28, 2008. After a one-year grace period, this new program will be enforced. MIFAFF was initially considering recognizing inadvertent presence of biotech content in processed organic products. However, due to strong criticism from NGOs, MIFAFF has expressed reservations and has not yet made a decision.

F. Labeling

Both unprocessed biotech crops for human consumption and processed food products containing biotech ingredients must carry “GM Food” labels. Unprocessed biotech soybeans, soybean sprouts, corn, and potatoes intended for human consumption used to be required to carry “GM Food” labels. Effective June 29, 2007, labeling for unprocessed biotech crops was expanded and any unprocessed biotech crops that have been approved by KFDA for human consumption are required to carry “GM Food” label.

KFDA regulations for processed products, including consumer-ready products, used to require biotech labeling for 27 categories of foods if biotech soybeans or corn are one or more of the top five ingredients in the finished product or if a foreign protein or foreign DNA is present in the finished product. Effective May 14, 2008, KFDA added three more biotech crops to the current product list requiring mandatory GMO labeling. The three crops are cotton, canola, and sugar beets. If these crops are among the top five ingredients in the designated 28 food categories, and a foreign protein or foreign DNA is present in the final product, the processed food product would be subject to GMO labeling. Foods containing refined ingredients derived from these crops, such as cotton and canola oils, and raw sugar are currently exempt from the labeling requirement since a foreign protein or foreign DNA is not present in the finished products.

KFDA is considering the revision of its current biotech labeling requirements for processed food products in response to strong demand from NGO groups. Since the first import of biotech corn for human consumption in May 2008, vocal NGO groups have been pressuring KFDA to expand its mandatory labeling to food products manufactured with ingredients derived from biotechnology regardless of the presence of foreign protein or foreign DNA in a final product. Recently, a group of KFDA officials, NGOs and media visited the European Union and Japan to compare the biotech labeling system in those countries before drafting a proposed revision to the current biotech labeling guidelines. If biotech labeling is expanded, two options are under consideration; 1) expand biotech labeling to 1st step final processed food products such as cooking oil or corn syrup and 2) expand biotech labeling to any processed food products containing ingredients derived from biotechnology such as soft drink containing corn syrup. It is expected that Korea would become a non-GM market for food products if Korea expands the current mandatory biotech labeling. As food manufacturers will worry about producing GM labeled products and supermarkets will worry about carrying GM labeled products on the shelves due to targeting by NGOs. This will force out GM labeled products from the market and consumers will have no choice but buy non-biotech products at higher cost.

The Korean food processing industry was trying to stop the expansion of the biotech labeling regulations due to increased production costs in securing non-biotech grains. To date, Korea has purchased 697,000 MT of biotech corn for mainly food use such as corn syrup but only small and midsized food manufacturers have purchased the biotech corn derivatives. NGOs are constantly pressuring and threatening to boycott products from a company using biotech ingredients. They recently made 12 larger size food manufacturers companies declare that they would not use ingredients derived from biotech corn. Some larger food processors have switched from high fructose corn syrup to sugar, which has forced corn processors to cut production of biotech based corn syrup by 30 percent. This made corn processors hold off imports of biotech corn, which they initially planned to import total 1.2 million MT of biotech corn in 2008.

MIFAFF allows for a three percent adventitious presence of biotech components in unprocessed non-biotech products. MIFAFF's threshold is the default threshold for processed food products that are subject to biotech labeling requirements. KFDA also allows for a three percent adventitious presence of biotech components in raw materials such as soybeans and corn destined for human consumption. Intentional mixture of biotech ingredients triggers the labeling requirement even if the final level of biotech presence is within the three percent threshold.

In April 2007, MIFAFF introduced GMO labeling requirements for animal feed. Retail packaged animal feed products are required to carry a "GMO" label on a retail package if the biotech ingredients used in making the animal feed are just like food products. This new requirement has been implemented since October 11, 2007. However, it seems mandatory

labeling has had no impact on the trade of biotech feed grains as almost all animal feed products are subject to mandatory GMO labeling.

Contents of Label Texts

Shipments that consist of 100 percent unprocessed biotech crops for human consumption should carry labels stating "GM 'commodity'" (e.g. "GM soybeans"). Shipments that contain some biotech-enhanced crops should carry labels stating that the product "contains GM 'commodity'" (e.g. "contains GM soybeans"). Shipments that may contain biotech-enhanced crops should carry labels stating that the product "may contain GM 'commodity'" (e.g. "may contain GM soybeans").

Processed products containing biotech ingredients should be labeled as follows:

- Products that contain biotech corn or soybeans composing less than 100 percent of the product ingredients should be labeled as "GM food" or "food containing GM corn or soybeans."
- Corn or soybean products that are 100 percent biotech products should be labeled "GM" or "GM corn or soybeans."
- Products that may contain biotech corn or soybeans should be labeled "May contain GM corn or soybeans."

Use of Labels Such as "Biotech-Free", "Non-Biotech", "GMO-Free", or "Non-GMO"

Concerning unprocessed biotech crops for human consumption, MIFAFF allows a voluntary "non-GMO" label if the product is composed of 100-percent non-biotech enhanced material. For products with "non-GMO" labels, the maximum GMO threshold allowance is zero. Unprocessed bulk crops in which there is an adventitious presence of biotech components are not permitted to carry a "non-GMO" label. Importers must keep the relevant documents that support their "non-GMO" claim. Such documents can include a testing certificate stating that there is no presence of GMO components. With regard to processed food products, however, KFDA does not encourage "non-GMO" or "GMO-free" labeling to prevent the misuse of such labels. (See Attaché Reports KS1004 and KS1046 for more details on GM labels.)

G. Biosafety Protocol

Korea ratified the Cartagena Protocol on Biosafety (CPB) on October 2, 2007 and implemented the LMO Act, Korea's legislation that implements the CPB on January 1, 2008. To date, there have been no trade disruptions due, in large part to the flexible interpretation by the Korean government in interpreting of their regulations on the issue of documentation. For documentation requirements, the LMO Act clearly requires exporters to state which biotech events are contained in the shipment; however, MIFAFF has decided to allow exporters to simply provide a list of all biotech events approved for use in Korea. The LMO Act requires a "does contain" principle, but in actual practice, Korea is allowing a "may contain" principle. Although trade has continued without any disruption, Korean regulations including the LMO Act need to be modified to reflect the actual practice and to be consistent with the CPB.

Concerns over the risk assessment process for LMOs for food, feed, and processing (LMO FFP) are growing. Specifically, consultations as part of risk assessments for LMO FFPs are redundant, unprecedented and without scientific justification. Unnecessary delays as a result of these consultations are already leading to delays in reviews of new products which could lead to potential trade disruptions. The Korea government should reconsider the need for unnecessary consultations for LMO FFPs in order to eliminate unnecessary requirements.

H. Biotechnology-Related Trade Barriers

KFDA revised its labeling guidelines in order to formalize its policy regarding the zero tolerance for biotech components in organic products. Exporters from any country where biotech crops are produced could face difficulty in exporting organic products such as soybean powder and soy protein to Korea because of Korea's zero-tolerance policy.

The Korean government required shipments of U.S. rice to be tested multiple times to confirm the absence of LLRice since the discovery of trace amounts of LLRice 601 in the U.S. rice supply in August 2006. MIFAFF requires two separate tests prior to loading, while the KFDA requires a third test upon arrival. Once rice is released into the market, the National Agricultural Product Quality Service under MIFAFF conducts the fourth test to verify the absence of LLRice in the marketed rice.

In March 2008, Korea eliminated mandatory requirements for a StarLink free certificate for U.S. origin corn and corn based products and Bt 10 free certificate for U.S. origin bulk corn shipments.

I. Pending Legislation

As noted in paragraph G above, the consolidated guidelines to implement the LMO Act are pending.

J. Technology Fees

Korea does not have legislation in place to collect technology fees.

K. Government Investment and Non-Ag. Related Biotech Research

Many Koreans continue to believe that biotechnology is an important frontier for economic development for Korea in the 21st century. Proponents have had some success in making the case that biotechnology could be an engine for growth and could solve public health and environmental problems. Accordingly, Korea aspires to become the seventh largest biotech country in the world by 2016. To achieve such a goal, Korea plans to strengthen the biotechnology promotion system based upon Bio-Vision 2016. Korea will continue to expand investment on biotechnology research and development of infrastructure. Investment will focus on national strategic areas such as fusion technology (BT-NT, BT-IT), biomaterial, biomedicine and organs, gene therapy, etc.

In 2008, the Korean government will increase its investment in the biotechnology sector by 5.8 percent, as compared to last year, to 930.4 billion won (approximately $895 million dollars). Seven hundred eighty seven billion won will be used for research and development while the remaining government assistance will be used for the development of infrastructure and human resource. In line with the implementation of the LMO Act, Korea will build a safety management system for LMOs that can meet international standards. Korea will increase its investment in high value added items such as medical technology, bio reproduction technology, custom tailored pharmaceutical products, technology to diagnose and prevent human-animal transmittable disease.

Despite the Korean government's support for biotechnology research, the Korean public still has a negative perception of crops and foods produced using biotechnology. Consequently, the majority government funding for biotechnology research is directed toward non-agricultural projects such as biomedicine, stem cell research, cloning, and gene therapy.

Koreans in general maintain a positive view towards non-agricultural biotechnology and believe biotechnology will play an important role in the country's economic development.

Korean Government Investment in R & D for Five Major Sectors in Biotechnology
(Unit: billion won)

Sector	Life Science	Health & Medical	Agriculture, Livestock & Food	Industry/ Environment/ Marine	Bio Fusion	Total
2007 (A)	254	165	94	97	85	695
2008 (B)	292	205	99	93	87	776
B/A(%)	14.9	24.1	5.7	-4.2	2.9	11.7

SECTION IV. MARKETING ISSUES

A. Market Acceptance

Contradictory views about biotechnology characterize the Korean marketplace. Koreans hold positive views about the use of biotechnology in human and animal research, bio-medicine, and in the treatment of disease. On the other hand, Koreans feel negatively about use of biotechnology to produce food. Polls indicate that Koreans are willing to pay extra for non-biotech products.

Non-governmental organizations and the media have reinforced negative consumer perceptions surrounding the use of biotechnology to produce food. Concerns about negative reactions from NGOs, media, and individual consumers severely limit retailers' willingness to stock products with a "GM Food" label. Nonetheless, Korea imports substantial amounts of food ingredients produced using biotechnology for further processing into vegetable oil, corn syrup, and other products that are currently exempt from "GM Food" labeling requirements.

B. Korean Market Survey on Biotechnology Products

Consumer Group Survey

In March 2008, the Korea Consumer Union conducted a survey of 200 consumers to identify consumer perception on biotechnology following a similar survey in 2007. The survey showed very contradictory results. Ninety percent of the respondents thought that biotechnology was beneficial to the food and agriculture sector while at the same time, 75 percent of the respondents were concerned with the safety of biotech food. Compared to the survey taken the previous year, which showed that 48 percent of consumers were concerned about biotech food, the number of consumers concerned about biotech food has substantially increased. It is assumed that media coverage about the first case of Korea importing biotech corn for human consumption and NGO activities against it has raised consumers' concern about biotech food. The survey shows that consumers were concerned with biotech food because 1) the safety of biotech food is not confirmed (28 percent), 2) it is difficult to judge the safety and information (23 percent), 3) there can be unexpected bad effects (22 percent), 4) it can impact on future generation (11 percent). Seventy percent of the respondents thought that their concerns could be addressed if the safety of biotech crops coups be verified. Concerning a biotech label on consumer products, 68 percent of consumers responded that they checked product labels before purchasing food products. Only 32 percent of the respondents thought that biotech food products such as cooking oil are safe to eat.

SECTION V. CAPACITY BUILDING AND OUTREACH

A. U.S. Government or USDA Funded Outreach Activities

A number of activities have been organized and funded to provide biotechnology outreach in Korea:

1. Biotech press mission to the United States consisting of six reporters in 2000 sponsored by the USDA
2. Cochran Fellowship Program for three Korean biotechnology regulators in 2002
3. Inclusion of biotech briefings for participants in the State Department's International Visitors Program since 1999
4. Video conference sponsored by the USDA for professors and media in 2002
5. Speakers from the USDA, the State Department, and other agencies/organizations for various local symposiums organized by Korean government agencies including KFDA, RDA, the Korea Research Institute for Bioscience and Biotechnology, etc.
6. U.S. Grains Council's annual biotech program for media, NGOs, scientists, etc.
7. Dr. Benson's speech and press outreach in June 2006
8. Presentation by an expert from North American Export Grain Association to Korean industry pertinent to the Cartagena Protocol on Biodiversity in December 2007.

In August 2008, as part of U.S. Grain Council's activities, a team of high school teachers who write textbooks for students will visit the United States. The purpose of this activity is to share information about biotechnology so that the group can portray a more balanced view than currently exists in Korean textbooks.

SECTION VI. REFERENCE MATERIAL

APPENDIX A. TABLE OF APPROVED BIOTECHNOLOGY PRODUCTS AS OF JULY 2008

* FA: Food approval
* ERA: Environmental Risk Assessments (not for planting)

No	Crop	Event	Trait Category	Applicant	Approval
1	Soybean	GTS40-3-2	Herbicide Tolerance (HT)	Monsanto	FA* and ERA*
2	Corn	Mon810	Insect Resistance (IR)	Monsanto	FA and ERA
3	Corn	TC1507	HT, IR	Dupont	FA and ERA
4	Corn	GA21	HT	Monsanto	FA and ERA
5	Corn	NK603	HT	Monsanto	FA and ERA
6	Corn	Bt 11	HT, IR	Syngenta	FA and ERA
7	Corn	T25	HT	Aventis / Bayer	FA and ERA
8	Corn	MON863	IR	Monsanto	FA and ERA
9	Corn	Bt176	IR	Syngenta	FA and ERA
10	Corn	DLL25 [1)]	HT	Monsanto	FA
11	Corn	DBT418 [1)]	HT, IR	Monsanto	FA
12	Corn	MON863 X NK603	Ht, IR	Monsanto	FA and ERA
13	Corn	MON863 X MON810	IR	Monsanto	FA and ERA
14	Corn	MON810 X GA21	HT, IR	Monsanto	FA
15	Corn	MON810 X NK603	HT, IR	Monsanto	FA and ERA
16	Corn	MON810 X MON863 X NK603	HT, IR	Monsanto	FA and ERA
17	Corn	TC1507 X NK603	HT, IR	Dupont	FA and ERA
18	Corn	Das-59122-7	HT, IR	Dupont	FA and ERA
19	Corn	Mon88017	HT, IR	Monsanto	FA and ERA
20	Corn	Das-59122-7 X TC1507 X NK603	HT, IR	Dupont	FA and ERA
21	Corn	TC1507 X Das-59122-7	HT, IR	Dupont	FA and ERA
22	Corn	Das-59122-7 X NK603	HT, IR	Dupont	FA and ERA
23	Corn	Bt11 X GA21	HT, IR	Syngenta	FA and ERA
24	Corn	MON88017 X	HT, IR	Monsanto	FA and

		MON810			ERA
25	Corn	Bt10 [2)]	HT, IR	Syngenta	FA
26	Corn	MIR604	IR	Syngenta	FA and ERA
27	Corn	MIR604 X GA21	HT, IR	Syngenta	FA & ERA
28	Corn	Bt11 X MIR604	HT, IR	Syngenta	FA & ERA
29	Corn	Bt11 X MIR604 X GA21	HT, IR	Syngenta	FA & ERA
30	Cotton	Mon531	IR	Monsanto	FA and ERA
31	Cotton	757	IR	Monsanto	FA and ERA
32	Cotton	Mon1445	HT	Monsanto	FA and ERA
33	Cotton	15985	IR	Monsanto	FA and ERA
34	Cotton	15985 X 1445	HT, IR	Monsanto	FA and ERA
35	Cotton	531 X 1445	HT, IR	Monsanto	FA and ERA
36	Cotton	281/3006	HT, IR	Dow Agro Science	FA and ERA
37	Cotton	Mon88913	HT	Monsanto	FA and ERA
38	Cotton	LLCotton 25	HT	Bayer	FA and ERA
39	Cotton	Mon88913 X Mon15985	HT, IR	Monsanto	FA and ERA
40	Cotton	Mon15985 X LLCotton 25	HT, IR	Bayer	FA and ERA
41	Cotton	281/3006 X Mon88913	HT, IR	Dow Agro Science	FA
42	Cotton	281/3006 X Mon1445	HT, IR	Dow Agro Science	FA
43	Canola	RT73 (GT73)	HT	Monsanto	FA and ERA
44	Canola	Ms8/Rf3	HT	Bayer	FA and ERA
45	Canola	T45	HT	Bayer	FA and ERA
46	Canola	MS1/RF1 [1)]	HT	Bayer	FA and ERA
47	Canola	MS1/RF2 [1)]	HT	Bayer	FA and ERA
48	Canola	Topas19/2 [1)]	HT	Bayer	FA and ERA
49	Potato	SPBT02-05 [1)]	IR	Monsanto	FA
50	Potato	RBBT06 [1)]	IR	Monsanto	FA
51	Potato	Newleaf Y [1)]	IR, Virus Resistance (VR)	Monsanto	FA
52	Potato	Newleaf Plus [1)]	IR, VR	Monsanto	FA
53	Sugar beet	H7-1	HT	Monsanto	FA

54	Alfalfa	J101 X J163 [3)]	HT	Monsanto	FA

[1)] Conditional approval for discontinued items
[2)] Conditional approval for items that are not intended for commercialization
[3)] Conditional approval as other category and adventitious presence is accepted.